

Abstract

STABILIZED SOLID-STATE LASER GYRO

The field of the invention is that of solid-state laser gyros. One of the major problems inherent in this technology is that the optical cavity of this type of laser is by its nature highly unstable.

To reduce this instability, the invention proposes to introduce controlled optical losses into the cavity (1) that depend on the polarization direction by placing in the cavity an optical assembly comprising a polarizing element (71), a first element (7) exhibiting a reciprocal effect that acts on the polarization of the wave and a second element (8) exhibiting a nonreciprocal effect that also acts on the polarization of the wave, at least one of these two effects being variable, and to electronically slave these losses to the difference in intensity between the counterpropagating modes.

Several devices are described that implement either fixed reciprocal effects combined with variable nonreciprocal effects, or vice versa. These devices apply in particular to monolithic cavity lasers and especially to lasers of the neodymium-doped YAG type and also to fiber cavity lasers.

FIGURE 3